

**Claims**

1. A light grid for the detection of objects in a monitoring region having  
5 a transmitter unit comprising a plurality of light transmitters and a  
receiver unit comprising a plurality of light receivers, in which  
respective pairs of light transmitters and light receivers associated  
with one another and bounding the monitoring region can be  
activated in succession in time in dependence on a synchronization  
10 signal transmitted between the transmitter unit and the receiver  
unit, characterized in that at least one light guide (20) is provided  
for the transmission of the synchronization signal.
2. A light grid in accordance with claim 1, characterized in that the  
15 light guide (20) is arranged outside the monitoring region (14).
3. A light grid in accordance with claim 1, characterized in that the  
light guide (20) connects the first or last light transmitter (22) to the  
first or last light receiver (26) of the transmitter and receiver units  
20 (12, 16) comprising a plurality of light transmitters (22) or light  
receivers (26) respectively.
4. A light grid in accordance with claim 3, characterized in that the  
other light transmitter (22) / light receiver (26) pairs can be  
25 automatically activated in succession at defined time intervals after  
the transmission and reception of the synchronization signal.
5. A light grid in accordance with claim 1, characterized in that  
permitted object sizes and/or movements of an object (24) located in

the monitoring region (14) can be programmed into or learned by a control unit.

- 5 6. A method for the operation of a light grid for the detection of objects in a monitoring region, in which light signals are transmitted from a transmitter unit comprising a plurality of light transmitters to a receiver unit comprising a plurality of light receivers, with respective pairs of light transmitters and light receivers associated with one another and bounding the monitoring region being activated in succession in time in dependence on a synchronization signal transmitted between the transmitter unit and the receiver unit, characterized in that the synchronization signal is transmitted during operation from the transmitter unit (12) to the receiver unit (16) via changing pairs of light transmitters (22) and light receivers (26) associated with one another.
- 10 7. A method in accordance with claim 6, characterized in that, when the transmission of the synchronization signal between a first pair of light transmitter (22) and light receiver (26) is interrupted or if such an interruption is due, a transmission of the synchronization signal takes place between a second pair of light transmitter (22) and light receiver (26).
- 15 8. A method in accordance with claim 6, characterized in that the first pair consists of the respective first or last light transmitter (22) of the transmitter unit (12) and the respective first or last light receiver (26) of the receiver unit (16); and/or in that the second pair consists of the respective last or first light transmitter (22) of the transmitter
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unit (12) and the respective last or first light receiver (26) of the receiver unit (16).

5 9. A method in accordance with claim 6, characterized in that a switch or alarm signal is only emitted when a pre-determined minimum number of light receivers (26) adjacent to one another do not report any reception and an object (24) located in the monitoring region (14) thus exceeds a pre-determined minimum size.

10 10. A method in accordance with claim 9, characterized in that an object (24) not exceeding the pre-determined minimum size is also detected in the monitoring region (14); and in that a change of the pair of light transmitter (22) and light receiver (26) responsible for the transmission of the synchronization signal takes place in  
15 dependence on the position and/or direction of movement of such an object (24).

20 11. A method in accordance with claim 6, characterized in that the transmission of the synchronization signal takes place in dependence on a fixed or determined direction of object entry into the monitoring region (14) via a first or a second pair of light transmitter (22) and light receiver (26).

25 12. A light grid for the detection of objects in a monitoring region having a transmitter unit comprising a plurality of light transmitters and a receiver unit comprising a plurality of light receivers in which respective pairs of light transmitters and light receivers associated with one another and bounding the monitoring region can be activated in succession in time in dependence on a synchronization

signal transmitted between the transmitter unit and the receiver unit, characterized in that a control unit (28) is provided for the transmission of the synchronization signal from the transmitter unit (12) to the receiver unit (16) via changing pairs of light transmitters (22) and light receivers (26) associated with one another.

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13. A light grid in accordance with claim 12, characterized in that the control unit (28) is designed for the carrying out of the methods in accordance with one of the claims 7 to 11.

13. A light grid in accordance with claim 12, characterized in that the control unit (28) is designed for the carrying out of the methods in accordance with one of the claims 7 to 11.